

JVC

TK-C920BU/TK-C920BE
TK-C921BEG

These are general IMPORTANT SAFEGUARDS and certain items may not apply to all appliances.

IMPORTANT SAFEGUARDS

1. Read all of these instructions.
2. Save these instructions for later use.
3. All warnings on the product and in the operating instructions should be adhered to.
4. Unplug this appliance system from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
5. Do not use attachments not recommended by the appliance manufacturer as they may cause hazards.
6. Do not use this appliance near water - for example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc.
7. Do not place this appliance on an unstable cart, stand, or table. The appliance may fall, causing serious injury to a child or adult, and serious damage to the appliance may fall, causing serious injury to a child or adult, and serious damage to the appliance.
Use only with a cart or stand recommended by the manufacturer, or sold with the appliance. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.
An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
8. Slots and openings in the cabinet and the back or bottom are provided for ventilation, and to insure reliable operation of the appliance and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the appliance on a bed, sofa, rug, or other similar surface. This appliance should never be placed near or over a radiator or heat register. This appliance should not be placed in a built-in installation such as a bookcase unless proper ventilation is provided.
9. This appliance should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company. For appliance designed to operate from battery power, refer to the operating instructions.
10. This appliance system is equipped with a 3-wire grounding type plug (a plug having a third (grounding) pin). This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding plug.
11. For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.
12. Do not allow anything to rest on the power cord. Do not locate this appliance where the cord will be abused by persons walking on it.
13. Follow all warnings and instructions marked on the appliance.
14. Do not overload wall outlets and extension cords as this can result in fire or electric shock.
15. Never push objects of any kind into his appliance through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the appliance.
16. Do not attempt to service this appliance yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
17. Unplug his appliance from the wall outlet and refer servicing to qualified service personnel under following conditions:
 - a. When the power cord or plug is damaged or frayed.
 - b. If liquid has been spilled into the appliance.
 - c. If the appliance has been exposed to rain or water.
 - d. If the appliance does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the appliance to normal operation.
 - e. If the appliance has been dropped or the cabinet has been damaged.
 - f. When the appliance exhibits a distinct change in performance - this indicates a need for service.
18. When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
19. Upon completion of any service or repairs to this appliance, ask the service technician to perform routine safety checks to determine that the appliance is in safe operating condition.



For Customer Use:
Enter below the Serial No. which is located on the body.
Retain this information for future reference.
Model No. _____
Serial No. _____

COLOR VIDEO CAMERA

Instructions

Thank you for purchasing the JVC color video camera.
To obtain the best results from your new camera, read these instructions carefully before use; retain the manual for future reference.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

INFORMATION (FOR CANADA) RENSEIGNEMENT (POUR LE CANADA)

This Class [B] digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe [B] est conforme à la norme NMB-003 du Canada.

Due to design modification, data given in this instruction book are subject to possible change without prior notice.

PRECAUTIONS

- Picture may not appear correctly if white-spot correction is performed incorrectly. Follow the steps listed in the instructions. (Reference: White-spot correction ➡I) Do not perform this operation when there are no white spots.
- If the AGC switch is turned on, the sensitivity increases automatically in dark places. It is not a failure when the image looks grainy.
- If the D/N switch is turned on, the mode changes automatically to black and white in dark places. As the sensitivity increases, the image may look grainy and white spots may appear. When changing modes, bright portions of image may be emphasized but this is not a failure of the camera.
- If a zoom lens is used, check the back focus before mounting the camera. This also applies to lens ALC and LEVEL. (See the instructions on lenses for details.)
- If a high-intensity object (such as a lamp) is shot, the image on the screen may have vertical lines (smear) or blur (blooming) at its periphery (especially in AES mode). This is a characteristic of the CCD, and is not a defect.
- If an EE lens is used, set the automatic electronic shutter switch (AES) to OFF. If set to ON, flickering may occur. If a manual iris lens is used, set the AES to ON.
- When used in hot places, vertical lines may appear on the screen of this camera. This is a characteristic of the CCD and not a failure of the camera.
- The automatic tracking system may not function properly when shooting with non-standard lighting or lighting with a color temperature which exceeds the capability of the camera. In such a case, set to the "MANU" position.
- If the camera subject is a single solid color (other than white), the auto white circuit will normally attempt to change this color to white. In the case of this camera, if it cannot make a correct prediction, the previous white balance setting will be maintained until the subject colors become more varied.
- Noise may appear in the picture and/or the colors may be incorrect if the camera is used near a radio or television transmitting antenna, in places where strong electromagnetic waves are generated by transformers, motors, etc., or near devices emitting radio waves, such as transceivers or cellular phones.
- To save energy, be sure to turn off the system when not in use.

OPERATING PRECAUTIONS

Storage and Location of Use

1. This camera has been designed for indoor use .When you use it outdoors, be sure to use a housing or the like.
2. DO NOT install or use the camera in the following places.
 - In a place exposed to rain or moisture.
 - In a place with vapor or oil, for example in a kitchen.
 - When the ambient temperature rises above or falls below the acceptable range(from -10 °C to 50 °C)
 - In a place at which corrosive gases are emitted.
 - Near a source of radiation, X-rays, strong radio waves or magnetism.
 - In a place subject to vibration.
 - In a place with excessive dirt.
3. Using this unit or cables connected to this unit at places at which strong radio waves and magnetism are emitted (e. g. near a radio, TV, transformer or motor)may give rise to noises in the image and changes in its color.

MOUNTING A LENS

1. Before mounting a lens, check whether it is a C-mount or CS-mount lens.
If a C-Mount lens is used, loosen the back-focus locking screw (M 2.6) using a Phillips head screwdriver, turn the back-focus adjusting ring with your fingers or the screwdriver and change the mounting method.
2. Dimension (b) of the lens shown in the illustration must be as shown in the table below. If (b) exceeds the value in the table, it may damage the inside of the camera or correct mounting may be impossible; never use such lenses. Do not attach the C-mount lens when using a CS-mount.

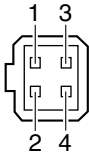
Lens	Flange back (c)	Dimension (b)
C mount lens	17.526mm	10mm or less
CS mount lens	12.5mm	5.5mm or less

The F mark indicates a focal point.

3. Mount the lens on the camera by turning the lens clockwise. Adjust its position.
4. When using an auto-iris lens with an EE amplifier, turn the switch to the "VIDEO" side. When no EE amplifier is equipped, turn the switch to the "DC" side.
5. If the lens has an auto-iris mechanism, Connect the lens cable after checking the pin arrangement.

Lens	DC IRIS (does not contain EE amplifier)	VIDEO IRIS (contain EE amplifier)
Pin No.		
1	Brake ⊖	9V [Max. 50 mA]
2	Brake ⊕	NC
3	Drive ⊕	VIDEO
4	Drive ⊖	GND

* 4 pin plug: For details, please consult your JVC dealer.



CONNECTION

1. When the camera is powered, the image appears.

CAMERA type	Power
TK-C920BU	AC 24V ~ (class 2 only) or DC 12V ---
TK-C920BE	AC 24V ~ (isolated power only) or DC12V ---
TK-C921BEG	AC 220V to 240V ~ (The power cable is 2500mm in length.)

Warning

The rated power of this product is AC 24 V, (BU : 60 Hz/BE : 50 Hz). Make sure to use it with the correct voltage.
Use an AC 24 V supply that is isolated at the primary end.
Supplying a power beyond the rated value may result in failures and in the worst scenario, smoking or fire. When the camera breaks down, turn off the power, and contact our service center immediately.
When a power beyond the rated value is supplied, the internal components may be damaged even if no abnormality is found on the appearance and operation of the camera.
Please contact our service center immediately for servicing (charged separately).

TK-C920BU/BE only:

- Never connect the DC 12V and AC 24V power inputs simultaneously.
- Be sure to observe the correct +, - polarity when connecting a DC 12V power input.

TK-C921BEG only: When you use this camera, the socket outlet must be installed near the equipment to make disconnect on easily.

2. Connect to a video monitor, etc. (75Ω)
3. To install the camera onto a tripod, fixing unit, or pan/tilt unit, use the fall-preventive socket (d) shown in the illustration. Special precautions must be taken for mounting the camera on a wall or a ceiling. We are not liable for any damage caused by improper installation.

4. Installation of camera
 - Mounting from the bottom
This camera is originally designed to be mounted from the bottom, as shown ①. The hole is standard photographic pan-head screw size (1/4-20 UNC). Example the Fixing unit or Pan/Tilt unit.
 - Mounting from the top
Remove the CAMERA MOUNTING BRACKET (e) from the bottom of the camera by removing two fixing screws as shown ②. Attach the CAMERA MOUNTING BRACKET (e) to the top, then mount the camera on the Fixing Unit as shown ③. Make sure that two original screws are used when mounting the CAMERA MOUNTING BRACKET (e); longer type screws (over 5mm) may damage inner components. (This camera has been designed for indoor use.)
 - Ask a professional to replace the camera-mounting.
 - Use a camera-mounting screw with a length between 5mm and 7mm from the camera-mounting face.

Fall Prevention

- Exercise maximum caution when installing the unit to the wall or ceiling. You should not engage in the installation work yourself. Ask a professional to do the job, since a falling unit can result in injuries and accidents.
- When installing the unit on a fixer, turn table, etc., make sure to install it firmly using a rotation-preventing hole provided to prevent fall.
- As a failsafe against falling, attach the unit by chain, wire cable or other safety restraint to an appropriate anchor point. Attach the fall prevention wire using the black screw on the upper surface of the camera as shown in figure F. When changing the side at which CAMERA MOUNTING BRACKET is installed, be sure to change the attachment side of the fall prevention wire also to the appropriate side.
- Specified screw (TK-C920BU/BE: M2.6 × 4 mm, TK-C921BEG: M3 × 6 mm)
Never use any screw longer than the specified length as the inside can be damaged.
- Before use make the fall prevention wire as short as possible.
- Use a fall prevention wire of sufficient strength and terminal treatment to support the weight of the camera, lens and fixer.
- To prevent fall, connect the camera to a section with sufficient strength (ceiling slab or channel)using a fall prevention wire.

LENS ADJUSTMENT

Video adjustment

Connect the camera according to the connection method, turn it on, display an image on the monitor, and check the image. The camera has been factory-adjusted to the best position, but it may need to be adjusted according to the object conditions or combination of lenses. If the image is unnatural, adjust it as follows:

• LEVEL adjustment

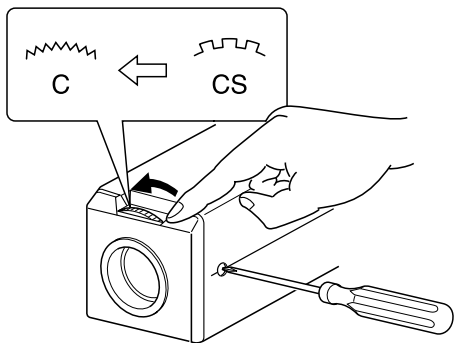
Monitor screen	LEVEL turning direction
Too bright	Counterclockwise (Toward L)
Too dark	Clockwise (Toward H)

• ALC adjustment

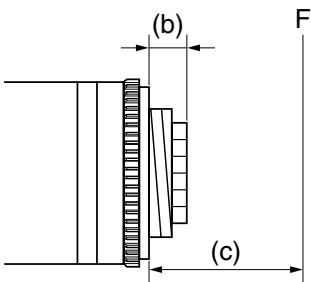
Monitor screen	ALC turning direction
Part (high-intensity part) of the screen halates.	Clockwise (Toward Pk)
Other part of screen (except high-intensity part) darkens.	Counterclockwise (Toward Av)

- * If the sensitivity adjustment LEVEL is turned excessively to L, the sensitivity increases because of the AGC function of the camera, and the image looks grainy.
- * If the video iris lens is set to too low a level, malfunction such as the hunting phenomenon, in which the iris opens or closes unintentionally, may occur.
In such a case, first set LEVEL potentiometer on the lens to the H (iris open) position then adjust it to the optimum level.

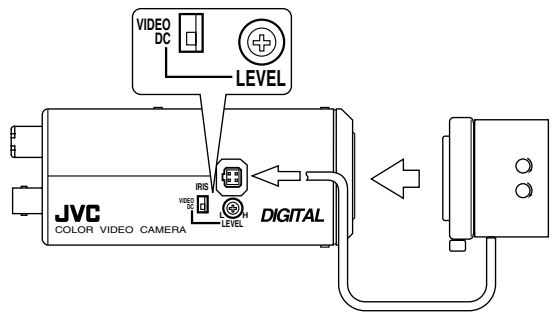
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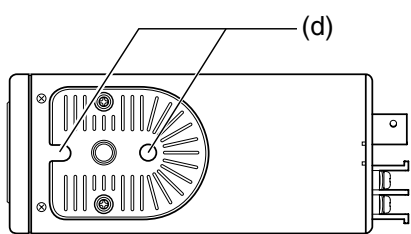
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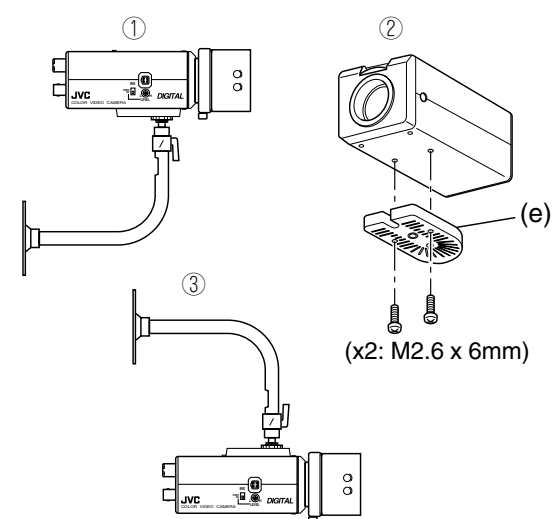
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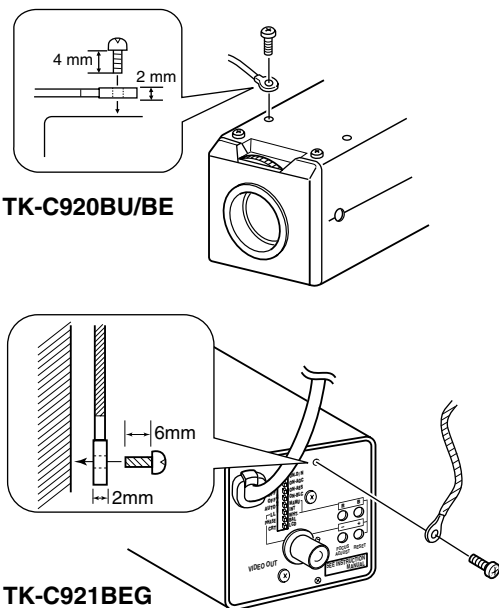
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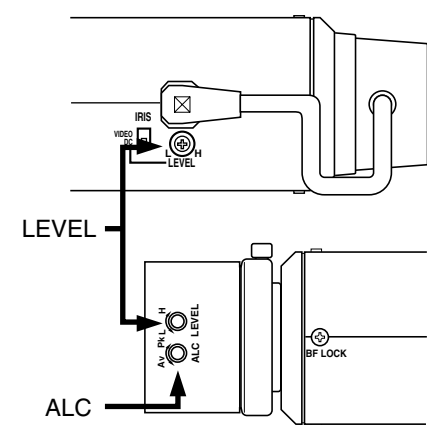
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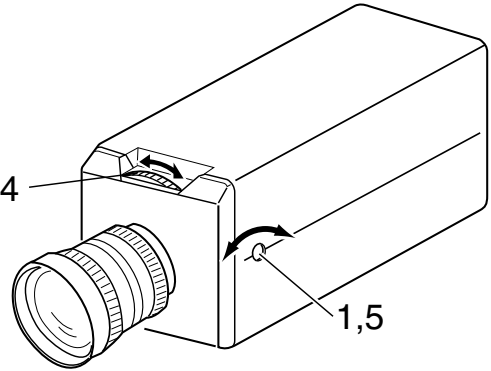
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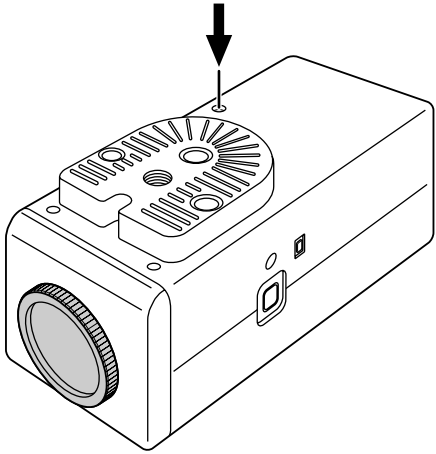
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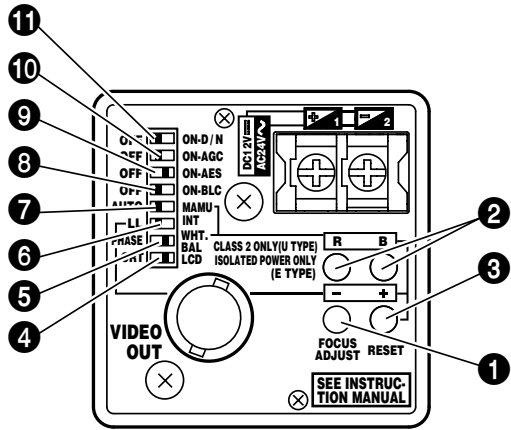
H



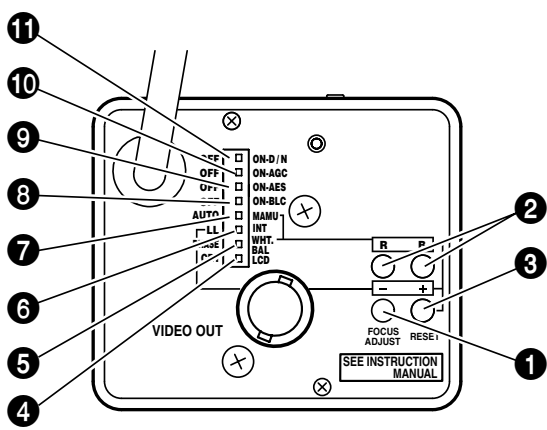
I



J

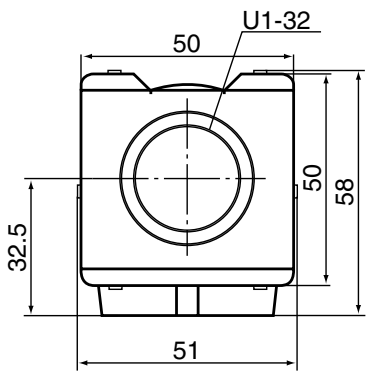


TK-C920BU/BE

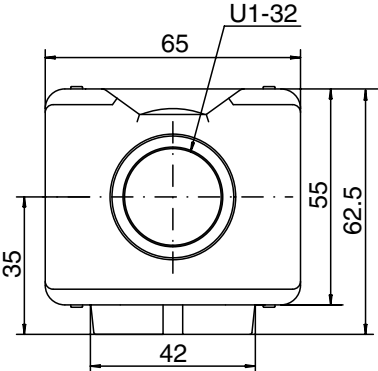
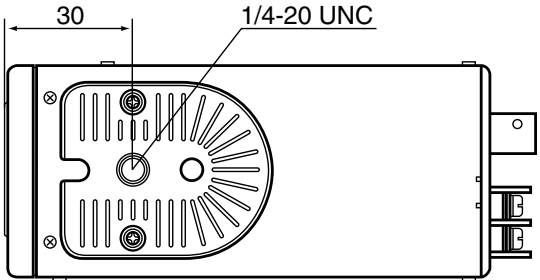
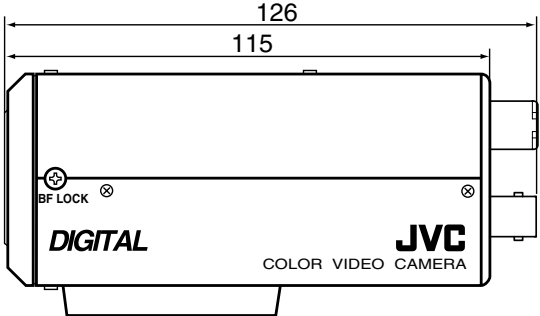


TK-C921BEG

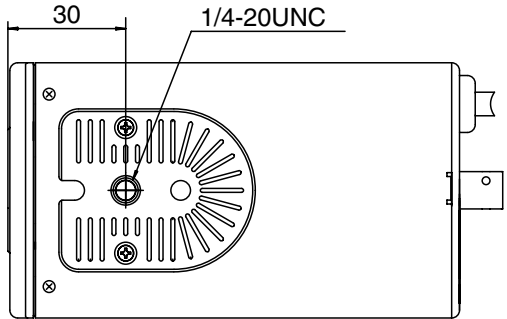
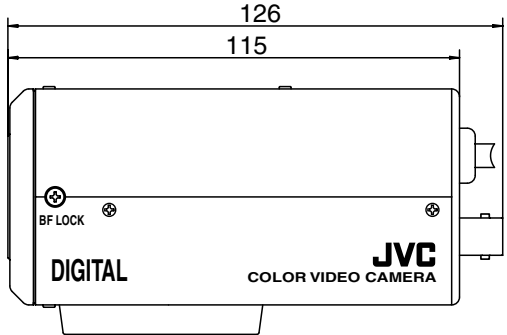
K



TK-C920BU/BE



TK-C921BEG



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LST0634-001A

Back focus adjustment

The back focus has been factory-adjusted to the best point for CS-mount lens, but it may need to be re-adjusted if the mount is changed to the C-mount or if a different lens is used. If required, adjust it as follows:

If the focus can not be adjusted correctly by rotating the lens focus ring, adjust the back focus as follows.

1. Loosen the back focus locking screw by turning it counterclockwise (↺) with a screwdriver.
2. Shoot a pattern closely.
3. Turn the lens focus ring to ∞.
4. Turn the back focus adjustment ring to focus at the best point.
5. Tighten the back focus locking screw by turning it clockwise (↻).

* When using a zoom lens, adjust the focus for telephoto wide-angle and maximum wide-angle.

Focus adjustment

Use the FOCUS ADJUST button ❶ to adjust the lens focus.

Upon pressing button ❶, the lens aperture will open up for about 30 seconds so that the depth of field becomes shallower, thus enabling focus to be easily adjusted.

NOTE: The electronic shutter functions automatically upon pressing button ❶ and the screen may flicker. However, this is not a malfunction.

SETTING SWITCH

White-spot correction

As a general characteristic unique to CCD, white spots may appear on the screen. Take the following steps in order to reduce the number of white spots.

1. Attach the lens cap, switch on the camera power supply and wait for 30 minutes.
2. Remove the sticker and press and hold the switch for more than 2 seconds using a thin rod.

* Do not use a metal rod.

* The white-spot correction feature of this unit does not guarantee the correction of all white spots.

Line Lock (TK-C920BU : 60Hz power region only

TK-C920BE/TK-C921BEG : 50Hz power region only)

To set the camera in LL mode for synchronization with the power supply frequency, take the following steps:

1. Turn switch ❸ to "LL";
2. Turn switch ❹ to "PHASE";
3. Press the + or - button ❷ to make the phase variable.

Adjust with the button ❷ so that the vertical phase of the camera matches the vertical phase of another camera (or system) with a multi-channel oscilloscope.

For initial setting, press RESET button ❺.

White Balance

White balance can be adjusted within the scope of 2300K to 10000K color temperature. When switch ❶ is at "AUTO", the white balance is adjusted automatically.

* When Hunting Auto Tracking White Balance symptoms occur when using an Auto iris lens with switch positions of AGC is on, AES is on, Int-lock with AC24V Power source, turn switch ❸ to "LL".

* When Hunting Auto Tracking White Balance symptoms occur when using a Manual iris lens with switch positions of AGC is on, AES is on, Int-lock with DC12V Power source, please adjust or close iris ring on the lens.

For manual adjustment, take the following steps:

1. Turn switch ❷ to "MANUAL";
2. Turn switch ❸ to "WHT.BAL";
3. Pressing "R" button ❹ increases redness while pressing "B" increases blueness. For initial setting, press RESET button ❺.

There are cases sometimes when the white balance cannot be adjusted manually for artificial lights such as fluorescent lights, etc.

BLC (Back Light Compensation)

The switch ❶ improves an image that is darkened because of backlighting.

Set this switch to ON for backlight subjects.

AES (Automatic Electronic Shutter)

Turning this switch ❶ "ON" when a lens with a manual iris diaphragm is used enables the automatic adjustment of image brightness. In this case the shutter speed changes according to the brightness of the subject.

* Hunting may occur at a certain object brightness due to the mechanism of the AES circuit, but this is not a fault.

AGC (Automatic Gain Control)

The switch ❶ automatically increases the camera's sensitivity when the level of ambient light drops.

ON : AGC is activated.

OFF : AGC is not activated.

D/N (Easy Day/Night)

Turn the ❶ switch on to shoot a subject with continually changing brightness (day/night). The camera uses color mode when the subject is bright, and black and white mode when it is dark. In this mode, AGC is always active regardless of the setting.

CRT/LCD

The switch ❶ is for setting the monitor type.

You can change the output video settings according to the type of monitor used. Select an appropriate mode.

LCD: Select this when using a LCD monitor.

CRT: Select this when using a CRT monitor.

SPECIFICATIONS

Image pickup device	: 1/3-inch interline-transfer CCD
Number of effective pixels	: TK-C920BU : 768 (H) × 494 (V) TK-C920BE/TK-C921BEG : 752 (H) × 582 (V)
Synchronization method	: Internal Line lock (TK-C920BU 60 Hz, TK-C920BE/TK-C921BEG 50 Hz regions only)
Scanning frequency	: TK-C920BU : (H) 15.734 kHz (V) 59.94 Hz TK-C920BE/TK-C921BEG : (H) 15.625 kHz (V) 50 Hz
Resolution	: 550 TV line (H) Typ.
Video output	: Composite video signal 1 V (p-p), 75Ω, unbalanced
Video S/N ratio	: 50 dB (AGC OFF)
Minimum required illumination	: Color mode : 0.35 lx (Typ.) (F1.2 AGC ON, 25%) Black and white mode : 0.24 lx (Typ.) (F1.2 AGC ON, 25%)
Lens mount	: C/CS mount
Power supply	: TK-C920BU : AC24 V ~ 60 Hz DC12 V --- 3.5 W TK-C920BE : AC24 V ~ 50 Hz/60 Hz DC12 V --- 300 mA
and power consumption	: TK-C921BEG : AC220 V-240 V ~ 50 Hz/60 Hz, 57 mA
Ambient temperature	: -10°C to 50°C (14°F to 122°F) (operation) 0°C to 40°C (32°F to 104°F) (recommended)
Mass	: TK-C920BU/BE : 340 g (0.75 lbs) TK-C921BEG : 660 g

DIMENSIONS (Unit: mm)

(Design and specifications are subject to change without notice.)

Dear Customer,

This apparatus is in conformance with the valid European directives and standards regarding electromagnetic compatibility and electrical safety.

European representative of Victor Company of Japan, Limited is:

JVC Technology Centre Europe GmbH

Company name changed in:

JVC Technical Services Europe GmbH

Postfach 10 05 52

61145 Friedberg

Germany

Information for Users on Disposal of Old Equipment



Attention:

This symbol is only valid in the European Union.

[European Union]

This symbol indicates that the electrical and electronic equipment should not be disposed as general household waste at its end-of-life. Instead, the product should be handed over to the applicable collection point for the recycling of electrical and electronic equipment for proper treatment, recovery and recycling in accordance with your national legislation.

By disposing of this product correctly, you will help to conserve natural resources and will help prevent potential negative effects on the environment and human health which could otherwise be caused by inappropriate waste handling of this product. For more information about collection point and recycling of this product, please contact your local municipal office, your household waste disposal service or the shop where you purchased the product.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

(Business users)

If you wish to dispose of this product, please visit our web page www.jvc-europe.com to obtain information about the take-back of the product.

[Other Countries outside the European Union]

If you wish to dispose of this product, please do so in accordance with applicable national legislation or other rules in your country for the treatment of old electrical and electronic equipment.

INFORMATION FOR USA

INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION

CHANGES OR MODIFICATIONS NOT APPROVED BY American Dynamics COULD VOID USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES.

OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.